

Listing of the claims:

1. – 60. (Canceled).

61. (Previously Presented) A method of compressing a current block of pixels of at least one frame of video data, the method comprising:

examining a plurality of candidate motion vectors, wherein each of the plurality of candidate motion vectors corresponds to a predetermined set of prior-coded blocks in the at least one frame;

selecting a first vector of the plurality of candidate motion vectors as the first reference vector when the first vector is at least one of coded with respect to the same reference frame as the current block and has a non-zero value;

selecting a second vector of the plurality of candidate motion vectors as the second reference vector when the second vector is at least one of coded with respect to the same reference frame as the current block and has a non-zero value; and

determining whether to use at least one of the first reference vector and the second reference vector for coding the current block.

62. (Previously Presented) The method of claim.61, wherein the predetermined set of prior-coded blocks is twelve neighboring prior-coded blocks of the current block.

63. (Previously Presented) The method of claim 61, wherein selecting the second vector as the second reference vector comprises:

selecting the second vector of the plurality of candidate motion vectors as the second reference vector when the second vector is at least one of coded with respect to the same reference frame as the current block, has a non-zero value and has a different value than the first reference vector.

64. (Previously Presented) The method of claim 61, further comprising:  
selecting a coding mode for the current block from a selection of coding modes.

65. (Previously Presented) The method of claim 64, further comprising:  
encoding the selected coding mode for the current block; and  
selectively encoding a motion vector for the current block based on the selected  
coding mode.

66. (Previously Presented) The method of claim 64, wherein the selection of  
coding modes includes at least the following:  
a first coding mode indicative of coding the current block using no motion vector;  
a second coding mode indicative of coding the current block using a new motion  
vector calculated based on a difference between the current block and a reference block in a  
prior-coded frame;  
a third coding mode indicative of coding the current block using the first  
reference vector; and  
a fourth coding mode indicative of coding the current block using the second  
reference vector.

67. (Previously Presented) The method of claim 66, wherein selectively encoding  
the motion vector comprises one of:  
encoding the new motion vector for the current block when the second coding  
mode is selected; and  
encoding no motion vector for the current block when the first, third or fourth  
coding modes are selected.

68. (Previously Presented) The method of claim 61, further comprising:  
calculating a new motion vector for the current block.

69. (Previously Presented) The method of claim 68, wherein encoding the new motion vector for the current block comprises one of:  
differentially encoding the new motion vector for the current block from a motion vector of a neighboring block; and  
encoding the new motion vector directly.

70. (Previously Presented) A method of encoding a current block in at least one frame of video data, the method comprising:  
calculating a new motion vector for the current block;  
selecting at least one reference motion vector from a predetermined set of prior-coded blocks in the at least one frame;  
comparing the new motion vector and the at least one reference motion vector;  
selecting a coding mode from a selection of coding modes based on the comparison; and  
encoding the selected coding mode for the current block.

71. (Previously Presented) The method of claim 70, wherein the at least one reference motion vector includes first and second reference vectors, and wherein the first and second reference vectors are coded with respect to the same reference frame as the current block and have non-zero values.

72. (Previously Presented) The method of claim 71, wherein the second reference vector has a different value than the first reference vector.

73. (Previously Presented) The method of claim 70, wherein calculating a new motion vector comprises:

finding a block from a prior-coded frame that best matches the current block; and  
calculating the new motion vector based on a difference between a row and a column of the current block and a row and a column of the best matching block in the prior coded frame.

74. (Previously Presented) The method of claim 70, wherein the selection of coding modes includes at least the following:

a first coding mode indicative of coding the current block using no motion vector;  
a second coding mode indicative of coding the current block using the new motion vector; and

a third coding mode indicative of coding the current block using the at least one reference motion vector.

75. (Previously Presented) The method of claim 74, wherein selectively encoding the motion vector further comprises one of:

encoding the new motion vector for the current block when the second coding mode is selected; and

encoding no motion vector for the current block when the first or third coding modes are selected.

76. (Previously Presented) The method of claim 75, wherein encoding the new motion vector for the current block when the second coding mode is selected comprises one of:

differentially encoding the new motion vector for the current block from a motion vector of a neighboring block; and

encoding the new motion vector directly.

77. (Previously Presented) The method of claim 70, wherein selecting the based on the comparison comprises:

selecting the third coding mode when the new motion vector and the at least one reference motion vector are the same.

78. (Previously Presented) A method for decoding compressed video information including at least one frame with a plurality of blocks, comprising:

reading a coding mode for a current block from the video information;

determining whether to select at least one reference motion vector from a predetermined set of prior-coded blocks in the at least one frame based on the coding mode;

selectively selecting the at least one reference motion vector based on the determination including:

examining a plurality of candidate motion vectors, wherein each of the plurality of candidate motion vectors corresponds to the predetermined set of prior-coded blocks in the at least one frame; and

selecting a first vector of the plurality of candidate motion vectors as the at least one reference vector when the first vector is at least one of coded with respect to the same reference frame as the current block and has a non-zero value.

79. (Previously Presented) The method of claim 78, wherein selectively selecting the at least one reference motion vector further includes:

selecting a second vector of the plurality of candidate motion vectors as the second reference vector when the second vector is at least one of coded with respect to the same reference frame as the current block, has a non-zero value and has a different value than the first reference vector.

80. (Previously Presented) The method of claim 79, wherein the predetermined set of prior-coded blocks is twelve neighboring prior-coded blocks of the current block.

81. (Previously Presented) The method of claim 79, wherein the coding mode is selected from a selection of coding modes including at least the following:

- a first coding mode indicative of coding the current block using no motion vector;
- a second coding mode indicative of coding the current block using a new motion vector calculated based on a difference between the current block and a reference block in a prior-coded frame; and
- a third coding mode indicative of coding the current block using the at least one reference vector.

82. (Previously Presented) The method of claim 81, wherein the at least one reference vector is selected when the coding mode is the third coding mode.

83. (Previously Presented) The method of claim 78, further comprising:

- determining whether the video information includes an encoded motion vector for the current block based on the coding mode; and
- decoding the current block based on the determination and the coding mode.

84. (Previously Presented) The method of claim 83, wherein the video information includes the encoded motion vector and decoding the motion vector for the current block is selected comprises one of:

- differentially decoding the encoded motion vector for the current block from a motion vector of a neighboring block; and
- decoding the encoded motion vector directly.

85. (New) A method of compressing a current block of pixels of at least one frame of video data, the method comprising:

- examining a plurality of candidate motion vectors, wherein each of the plurality of candidate motion vectors corresponds to at least one prior-coded block in a set of prior-coded

blocks;

selecting a first vector from the plurality of candidate motion vectors when the first vector has a non-zero value;

selecting a second vector from the plurality of candidate motion vectors when the second vector has a non-zero value and has a different value than the first vector;

calculating a new motion vector for the current block based on a difference between the current block and a reference block in a prior-coded frame;

selecting a coding mode from a selection of coding modes based on at least one of the first vector and the second vector, wherein the selection of coding modes includes at least the following:

a first coding mode indicative of coding the current block using no motion vector;

a second coding mode indicative of coding the current block using the new motion vector;

a third coding mode indicative of coding the current block using the first vector; and

a fourth coding mode indicative of coding the current block using the second vector; and

encoding the selected coding mode for the current block.

86. (Previously Presented) The method of claim 85, wherein the set of prior-coded blocks is twelve neighboring prior-coded blocks of the current block.

87. (New) The method of claim 85, further comprising:

selectively encoding a motion vector for the current block based on the selected coding mode.

88. (New) The method of claim 87, wherein selectively encoding the motion vector comprises one of:

encoding the new motion vector for the current block when the second coding mode is selected; and

encoding no motion vector for the current block when the first, third or fourth coding modes are selected.

89. (New) The method of claim 88, wherein encoding the new motion vector for the current block when the second coding mode is selected comprises:

encoding the new motion vector directly.

90. (New) The method of claim 88, wherein encoding the new motion vector for the current block when the second coding mode is selected comprises:

differentially encoding the new motion vector for the current block using a motion vector of a neighboring block.

91. (New) The method of claim 90, wherein the neighboring block is one of a block immediately to the left of the current block and a block immediately above the current block.

92. (New) The method of claim 88, wherein differentially encoding the new motion vector comprises:

determining a compound vector from a motion vector of a block immediately to the left of the current block and a motion vector of a block immediately above the current block; and

differentially encoding the new motion vector for the current block using the compound motion vector.

93. (New) The method of claim 92, wherein the motion vector of the block immediately to the left of the current block and the block immediately above the current block each have an x-component and a y-component and wherein determining the compound vector



comprises:

calculating an average of the x-component for the motion vector of the block immediately to the left of the current block and the x-component of the motion vector of the block immediately above the current block;

calculating an average of the y-component for the motion vector of the block immediately to the left of the current block and the y-component of the motion vector of the block immediately above the current block; wherein

the compound vector is equal to the calculated averages of the x-components and the y-components.

95. (New) The method of claim 85, wherein calculating the new motion vector for the current block comprises:

finding a block from the prior-coded frame that best matches the current block;

and

determining a difference between a row and a column of the current block and a row and a column of the best matching block in the prior-coded frame.

96. (New) The method of claim 85, wherein at least some of the prior-coded blocks are in the at least one frame.

97. (New) The method of claim 85, wherein selecting the first vector further comprises:

selecting the first vector from the plurality of candidate motion vectors when the first vector has a non-zero value and is coded with respect to the same reference frame as the current block.

98. (New) The method of claim 85, wherein selecting the second vector further comprises:

selecting the second vector from the plurality of candidate motion vectors when

the second vector has a non-zero value, has a different value than the first vector and is coded with respect to the same reference frame as the current block.

99. (New) The method of claim 85, further comprising:

determining whether the new motion vector is equal to at least one of the first vector and the second vector.

100. (New) The method of claim 99, wherein selecting the coding mode further comprises:

selecting the coding mode from the selection of coding modes based on the determination that the new motion vector equals at least one of the first vector and the second vector.